

CLAIMS

WHAT IS CLAIMED IS:

1. (Amended) A three dimensional air cushion comprising:
at least one air chamber having a sealed peripheral edge, said at least one air chamber including a base portion and two opposed lateral sides located on opposite sides of the base portion to form a concave structure, the base portion and the two lateral sides being formed between an upper surface layer and a lower surface layer, said two opposed lateral sides projecting above a plane occupied by said base portion to form elevated sidewalls of the air cushion and forming a U-shape with the base portion for distributing shock forces delivered to the sidewalls.

2. (Amended) A three dimensional air cushion comprising:
at least one air chamber having a sealed peripheral edge, said at least one air chamber including a base portion and two opposed substantially vertical lateral sides located on opposite sides of the base portion to form a concave structure, the base portion and the two lateral sides being formed between an upper surface layer and a lower surface layer, said two opposed lateral sides projecting above a plane occupied by said base portion to form elevated sidewalls of the air cushion and forming a U-shape with the base portion for distributing shock forces delivered to the sidewalls, and

an inner surface area of said air cushion defined by said upper surface layer being smaller than an outer surface area of said air cushion defined by said lower surface layer.

3. (Amended) A three dimensional air cushion comprising:
at least two air chambers communicating with each other, said at least two air chambers including a base portion and two opposed substantially vertical lateral sides located on opposite sides of the base portion to form a concave structure, the base portion and the two lateral sides being formed between an upper surface layer and a lower surface layer, said two opposed lateral sides projecting above a plane occupied by said

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base portion to form elevated sidewalls of the air cushion and forming a U-shape with the base portion for distributing shock forces delivered to the sidewalls, and

at least one recess extending from at least either said upper surface layer or said lower surface layer and separating said air chambers.

4. (Canceled)

5. (Canceled)

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6. (Canceled)

7. The three dimensional air cushion as claimed in claim 1, wherein said at least one air chamber is sealed.

8. The three dimensional air cushion as claimed in claim 2, wherein said at least one air chamber is sealed.

9. The three dimensional air cushion as claimed in claim 3, wherein said at least two air chambers are sealed.

10. The three dimensional air cushion as claimed in claim 1, wherein said air chamber has a one-way valve to communicate with open air.

11. The three dimensional air cushion as claimed in claim 2, wherein said air chamber has a one-way valve to communicate with open air.

12. The three dimensional air cushion as claimed in claim 3, wherein said air chambers have a one-way valve to communicate with open air.

13. (Amended) The three dimensional air cushion as claimed in claim 1, wherein the upper surface layer is provided with at least one recessed elongated groove and the lower surface layer is flat and smooth.

14. (Amended) The three dimensional air cushion as claimed in claim 2, where the upper

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surface layer is provided with at least one recessed elongated groove and the lower surface layer is flat and smooth.

15. (Amended) The three dimensional air cushion as claimed in claim 3, wherein the at least one recess is at least one recessed elongated groove in the upper surface layer and the lower surface layer is flat and smooth.

16. (Amended) The three dimensional air cushion as claimed in claim 1, wherein the lower surface layer is provided with at least one recessed elongated groove, and the upper surface layer is flat and smooth.

17. (Amended) The three dimensional air cushion as claimed in claim 2, wherein the lower surface layer is provided with at least one recessed elongated groove, and the upper surface layer is flat and smooth.

18. (Amended) The three dimensional air cushion as claimed in claim 3, wherein the at least one recess is at least one recessed elongated groove in the lower surface layer and the upper surface is flat and smooth.

19. (Amended) The three dimensional air cushion as claimed in claim 1, wherein the upper surface layer and the lower surface layer are provided with at least one recessed elongated groove.

20. (Amended) The three dimensional air cushion as claimed in claim 2, wherein the upper surface layer and the lower surface layer are provided with at least one recessed elongated groove.

21. (Amended) The three dimensional air cushion as claimed in claim 3, wherein the upper surface layer and the lower surface layer are provided with at least one recessed elongated groove.

22. (Amended) The three dimensional air cushion as claimed in claim 19, wherein said

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elongated recessed grooves provided in said upper surface layer and lower surface layer are connected with each other.

23. (Amended) The three dimensional air cushion as claimed in claim 20, wherein said elongated recessed grooves provided in said upper surface layer and lower surface layer are connected with each other.

24. (Amended) The three dimensional air cushion as claimed in claim 21, wherein said elongated recessed grooves provided in said upper surface layer and lower surface layer are connected with each other.

25. The three dimensional air cushion as claimed in claim 1, wherein said air cushion is a component in one of a shoe, a sneaker, a protective pad, and a helmet, for providing a buffer and shock-absorbing effect.

26. The three dimensional air cushion as claimed in claim 2, wherein said air cushion is a component in one of a shoe, a sneaker, a protective pad, and a helmet, for providing a buffer and shock-absorbing effect.

27. The three dimensional air cushion as claimed in claim 3, wherein said air cushion is a component in one of a shoe, a sneaker, a protective pad, and a helmet, for providing a buffer and shock-absorbing effect.

28. The three dimensional air cushion as claimed in claim 1, further including an inlet for filling fluid.

29. The three dimensional air cushion as claimed in claim 2, further including an inlet for filling fluid.

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30. The three dimensional air cushion as claimed in claim 3, further including an inlet for filling fluid.

31. The three dimensional air cushion as claimed in claim 28, further including a valve device.

32. The three dimensional air cushion as claimed in claim 29, further including a valve device.

33. The three dimensional air cushion as claimed in claim 30, further including a valve device.

34. The three dimensional air cushion as claim in claim 28, further including a pump device.

35. The three dimensional air cushion as claim in claim 29, further including a pump device.

36. The three dimensional air cushion as claim in claim 30, further including a pump device.

37. The three dimensional air cushion as claims 28, wherein said air chamber is filled with a liquid fluid.

38. The three dimensional air cushion as claims 29, wherein said air chamber is filled with a liquid fluid.

39. The three dimensional air cushion as claims 30, wherein said air chambers are filled with a liquid fluid.

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40. The three dimensional air cushion as claimed in claim 28, wherein said air chamber is filled with semi-liquid fluid.

41. The three dimensional air cushion as claimed in claim 29, wherein said air chamber is filled with semi-liquid fluid.

42. The three dimensional air cushion as claimed in claim 30, wherein said air chambers are filled with semi-liquid fluid.

43. The three dimensional air cushion as claimed in claim 28, wherein said air chamber is filled with foam material.

44. The three dimensional air cushion as claimed in claim 29, wherein said air chamber is filled with foam material.

45. The three dimensional air cushion as claimed in claim 30, wherein said air chambers are filled with foam material.

46. The three dimensional air cushion as claimed in claim 28, wherein said air chamber is filled with a gas other than air.

47. The three dimensional air cushion as claimed in claim 29, wherein said air chamber is filled with a gas other than air.

48. The three dimensional air cushion as claimed in claim 30, wherein said air chambers are filled with a gas other than air.

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